EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 4

EPSD Unit 4: Structure and Function (part II)
Second Marking Period

Overview: In this unit of study, students are expected to develop an understanding that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. By developing a model, they describe that an object can be seen when light reflected from its surface enters the eye. The crosscutting concepts of cause and effect, systems and system models, and structure and function are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models. Students are expected to use these practices to demonstrate understanding of the core ideas. This unit is based on 4-LS1-2 and 4-PS4-2.		**HMH Science Dimensions Program Resources**		
		Unit 5: Animal Structure and Function **Unit Video** (rhinoceros moving about); **Unit Overview** p. 281; **Vocabulary** p. 283; **Making Connections** p. 283H; **Unit Project** p. 283I; **Unit Performance Task** p. 344-345; **Unit Review** pp. 346-348		
		Standard for all Units: Interactive Glossary (D); Leveled Readers (D); Beginning-of-Year Test (D/P); Unit Pretest (D/P); Lesson Quizzes (D/P); Unit Test (D/P) **Note:** Refer to the Curriculum Alignment Common Language (CACL) Guide to decipher acronyms.		
Standards: (4-LS1-2) Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. (4-LS4-2) Develop a model to describe that light reflecting from objects and	**Instructional Days:** 10-15	**Lesson 1:** What Are Some External Structures of Animals? pp. 284-303 D/P- CYEI (video) Animal parts and their functions. p. 285 P- ENB (prompt) Students record observations from video or pictures on p. 285 about the two lizards. p. 285 P- ENB (prompt) Looking at the pictures on p. 286 or in	**Lesson 2:** What Are Some Internal Structures of Animals? pp. 304-323 D/P- CYEI (video) A runner using different parts of the body to run. p. 305 D/P- Breath in, Breathe out (Students explore online to find out about the movement of air through the respiratory system.) p. 307	**Lesson 3:** How Do Senses Work? pp. 324-343 D/P- CYEI (video) Dolphins using one of their senses to swim in the dark oceans. p. 325 P- ENB (prompt) How do dolphins find food in the dark water? What other sense might they use to “see” without using their eyesight? p. 325

entering the eye allows objects to be seen.		the eBook, students make a list of some of the other structures they see in the photos on p. 286 or in eBook. p. 286 D/P- Moving Parts (Students watch video and learn more about animals using external features to move in their environments.) p. 287 D/P- LS Interpret Information Presented Visually (Students list similarities in structures they observe in animals.) p. 288 D/P- Time to Eat (Students watch the videos to discover more about animal mouth structures) p. 289 D/P- Take Cover (Students explore online to take a closer look at animal coverings that protect the inside of an animal's body.) p. 290-291 P- Design to Survive (Students design an animal on a poster surviving in its environment.) p. 291	D/P- It Takes Teamwork! (Students watch video to observe how the circulatory system and the respiratory system interact.) p. 308 D/P- DTM Breathing Rate (Students work with a partner to count and record how many times they breathe in per minute.) p. 308 D/P- What's the Difference (Students watch each video and think about how the internal features of each kind of animal differs from the internal features of other kinds of animals.) p. 309 D/P- LS Compare and Contrast (Students identify which of the animals in the photos on p. 309 or in eBook have respiratory and circulatory systems most similar to those of humans and describe the features that make them similar.) p. 309	D/P- Body Senses (Students watch animation online about the human skeletal and nervous systems to learn more about senses.) p. 326 P- LS Identifying Main Ideas and Details (Students identify how their senses react to things in their environment.) p. 328 P- ENB (prompt) Think about how dolphins might use their sense of touch to catch food. p. 329 D/P- AWYK HO Activity Touch Test (Students watch video to discover more about the nervous system and collaborate with a partner to investigate how receptors work in their body.) pp. 330-332 P- CER (Students cite evidence to support their claims in steps 11-15 of the HO Activity.) p. 332 D/P- Is That Something I Want to Eat? (Students watch video to discover more about how mammals
Objective 1: Students will describe how a pinhole camera produces small upside-down images. Students will explain why a larger hole produces brighter but less focused images. In a lab, observe how a lens placed in front of the pinhole camera produces a bright and sharply focused image. After, students will compare a pinhole camera with a human eye, describing similarities and differences **Objective 2:** Students will model different shaped ears and how it impacts the ability to hear. **Objective 3:** To learn how animals use their senses in special ways. To use our own senses to better understand how animals use theirs. **Objective 4:** Students will explain how the eye uses light energy to see objects by creating a model.				
Topics: Creativity and Communication				
Essential Questions: How do animals receive and process different types of information from their environment in order to respond appropriately? What happens when light from an object enters the eye?				

	D/P- Inspired from Nature (Students watch video to discover more about how hook and loop tap mimics an animal structure.) p. 292 D/P- ENGIT Biomimicry (Students watch video to discover more about how animal adaptations inspire inventions.) p. 294 P- ENB (prompt) Think about an animal structure a human being could mimic. Design a model of how it could be used. p. 294 P- AWYK HO Activity Find the Inspiration (Students do research to learn more about an ornithopter and determine the animal structure that inspired the engineering design. Students think of an animal that has an ability that can be useful and design a device similar in function to the ability of the animal) p. 295 P- LS Summarize (Students identify how studying animal structures might provide people with new, invention ideas.) p. 295	P- ENB (prompt) Think about the videos of the runners at the beginning of the lesson. How do the circulatory and respiratory systems of these runners work together? List some problems that might happen if a person's circulatory or respiratory system isn't working well.) p. 310 D/P- AWYK HO Activity Pump It Up (Students work in small groups to investigate the relationship between exercise and breathing rate.) pp. 311-313 D/P- Food for Thought (Students explore online to find out more about the path of food through the digestive system.) pp. 314-315 P- ENB (prompt) Students explain how the lungs can be part of two different body systems: the respiratory system and the excretory system and the describe how these	use their sense of smell.) p. 333 D/P- AWYK HO Activity Name That Scent! (Students blindfold a partner and see how many smells he or she can identify correctly.) p. 333 D/P- Need Salt? Which Receptor? (Students explore online how the sensory receptors of their tongue work.) p. 334 D/P- AWYK HO Activity No See, No Smell, No Taste? (Students blindfold a partner and have him or her taste four different foods and ask him or her to identify the food; partners switch and repeat using four different foods.) p. 335 P- ENB (prompt) Dolphins are mammals, just like us. However, they do not have a sense of smell. Why do you think the sense of smell wouldn't be useful to dolphins? Record ideas in ENB. p. 335 P- LS Cause and Effect (Students identify a food

	D/P- AWYK HO Activity Staying Warm (Students collaborate with a partner to investigate how an animal's covering affects its survival.) pp. 296-298 P- CER (Students work with partners to critique each other's claims and evidence in Step 12 of the HO Activity.) p. 298 D/P- TIF (enrich) Careers in Science & Engineering: Biomemetic Engineering pp. 299-300 D- Balanced Parts D- A Feat of Feet D/P- Lesson Check pp. 301-302 D/P- Lesson Roundup p. 303 D- Lesson Quiz P- DI (ELL/RTI) p. 283G P-Extension p. 283G P- COLLAB p. 283H P- Making Connections p. 283H D- Science Safety HB D- CCC-HB D- ELA-HB	two body systems work together to help people grow and survive. p. 316 D/P- Breaking It Down (Students explore online to find out more about the digestive systems of different types of animals.) p. 317 P- AWYK HO Activity All Systems Go (Students choose four animals, or kinds of animals and make a chart that compares and contrasts the digestive systems of the animals they choose.) p. 318 D/P- LS Compare and Contrast (Students explain one similarity and one difference between the digestive system and the excretory system.) p. 318 D/P- TIF (enrich) People in Science: Henry Gray and Vanessa Ruiz pp. 319-320 D- Model Lungs D- Support Your Statements	they avoid because of the way it smells or tastes and identify how might an animal in the wild benefit from a strong smell or taste response.) p. 335 D/P- All Ears (Students watch the video of ears and bats using echolocation to learn more about hearing.) p. 337 P- LS Opinion (Students identify how they feel when they hear music and answer by associating words that describe their memories of music and sound with words that describe feelings.) p. 337 P- AWYK HO Activity Test It! (Student blindfolds their partner and make clicking noises in front of, to the left of, to the right of and behind their partner and observe how the blindfolded partner uses the clicking noises to locate the unblindfolded partner's position.) p. 338

	D- M- HB D- SEP-HB D- ScienceSarurs Reference HB D- YSI Simulation Break It Down	D/P- Lesson Check pp. 321-322 D/P- Lesson Roundup p. 323 D- Lesson Quiz P- DI (ELL/RTI) p. 283G P-Extension p. 283G P- COLLAB p. 283H P- Making Connections p. 283H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D- SEP-HB D- ScienceSarurs Reference HB D- YSI Simulation Break It Down	P- ENB (prompt) Students identify how they think dolphins might use sound to find their prey in murky water. p. 338 D/P- TIF (enrich) Extreme Senses pp. 339-340 D- Eye Check D- What Colors Do You See? P- LS Present It (Students research 5-10 other living things that have extraordinary senses and find out how these senses are used for survival. Students present their findings to the class in a multimedia presentation.) p. 340 D/P- Lesson Check pp. 341-342 D/P- Lesson Roundup p. 343 D- Lesson Quiz P- DI (ELL/RTI) p. 283G P-Extension p. 283G P- COLLAB p. 283H P- Making Connections p. 283H

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			D- Science Safety HB D- CCC-HB D- ELA-HB D- SEP-HB D- ScienceSarurs Reference HB

Curriculum Alignment Common Language (CACL) Guide K-5		
Acronym	**Word/Phrase**	**Description**
AWYK	Apply What You Know	Hands on opportunities for students to apply learning.
CER	Claims Evidence Reasoning	Students make a claim and gather evidence along the way (during EXPLORATORY activities) to support claim.
CYEI	Can You Explain It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
CYSI	Can You Solve It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
D	Digital	Program resources and features in interactive digital form.

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DI (ELL/RTI) **Extension** **COLLAB** **Connections to Science**	Differentiated Instruction (English Language Learner/Response to Intervention) Collaboration Connections to Science	A page that lists all learning activities used to differentiate learning, engage students in collaborative activities and connect learning to other subjects.
DTM	Do the Math	Integrated subject learning.
ENB	Evidence Notebook (prompt)	Student notebook or journal used to gather evidence during EXPLORATORY learning activities to support their claims.
ENGIT	Engineer It	Integrated subject learning.
HB **CCC-HB** **ELA-HB** **M-HB** **SEP-HB**	Handbooks Crosscutting Concepts English Language Arts Math Science and Engineering Practices	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
HO	Hands-On (Activity)	Student collaboration activities.
LS	Language Smarts	Integrated subject learning.
P	Print	Program resources and features in print form.
TIF	Take It Further (enrich)	Enrichment activities for students in print or digital.

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YSI	You Solve It (Simulation)	Open-ended simulation-based learning with multiple answer options.